

ROLE OF LAPAROSCOPY IN MANAGEMENT OF COLORECTAL CARCINOMA

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Summary

Laparoscopy has improved the surgical treatment of various diseases due to its limited surgical trauma and has developed as an interesting therapeutic alternative for open colorectal surgery. The applicability of laparoscopy to colorectal carcinoma continues to expand.

In laparoscopic management of colorectal carcinoma, it is important to standardize the preoperative and the postoperative care plans, so that optimal results can be obtained. Also appropriate patient choice and differences in surgical techniques or surgeon's skills may account for the great variability in outcome.

Laparoscopic-assisted colectomy for Colon cancer has been shown to be safe, with equivalent long-term survival rates to conventional open colectomy and better short-term patient outcomes. However, LAC tends to require more operating theatre time and disposable equipment. LAC for Colon cancer appears to be cost-effective relative to open colectomy. Expected future reductions in operating times, conversion rates and postoperative stays will further improve cost-effectiveness.

In rectal cancer, technical hurdle as well as doubt on oncological clearance had once limited sphincter preservation to carcinomas located at the recto sigmoid junction or in the upper rectum. Progress in technology and skills, however, has finally led to the controversial extension of minimally invasive techniques to distal rectal cancer with sphincter preservation. Generally laparoscopic management of colorectal carcinoma has a lot of advantages including decreased postoperative pain, early discharge from the hospital, less duration of postoperative ileus, less postoperative adhesions, less morbidity, less wound infection, less intraoperative blood loss, and improved cosmesis.

Contents

| Chapter | Content | Page |
|------------|--|------|
| Chapter 1 | Introduction and Aim of the Essay | 1 |
| Chapter 2 | Surgical Anatomy of the Colonand rectum | 4 |
| Chapter 3 | Surgical Pathology of Colorectal Carcinoma | 27 |
| Chapter 4 | Diagnosis of colorectal carcinoma | 35 |
| Chapter 5 | Different Techniques And Instruments Of Laparoscopic Management of colorectal carcinoma | 48 |
| Chapter 6 | Laparoscopic Management of Colorectal Carcinoma | 61 |
| Chapter 7 | Advantages, Disadvantages and Complications of Laparoscopic Management of Colorectal Carcinoma | 139 |
| Chapter 8 | Summary and Conclusion | 154 |
| Chapter 9 | References | 156 |
| Chapter 10 | Arabic summary | |

Tables

| Table | Page |
|--|------|
| Table 1: Stages and prognosis for colorectal cancers | 32 |
| Table 2: Specific instruments recommended for diagnostic laparoscopy | 42 |
| Table 3: Advantages and disadvantages of hand-assisted laparoscopic surgery | 60 |
| Table 4: Specific instruments recommended for laparoscopic right colectomy | 62 |
| Table 5: Specific instruments recommended for laparoscopic sigmoidectomy | 75 |
| Table 6: Specific instruments recommended for laparoscopic total colectomy | 94 |
| Table 7: Specific instruments recommended for laparoscopic anterior resection | 113 |

Figures

| Figure | Page |
|--|------|
| Fig. 1. Rectum in male and female | 9 |
| Fig. 2. Blood supply of the colon | 10 |
| Fig. 3. Blood supply of the colon | 10 |
| Fig. 4. The portal venous circulation | 12 |
| Fig. 5. Lymphatic Drainage of the colon | 12 |
| Fig. 6. Rectal and anal canal arteries | 14 |
| Fig. 7. Lymphatic drainage of rectum and anal canal | 14 |
| Fig. 8. Just below the liver the hepatic flexure, duodenum, and pancreatic head | 15 |
| Fig. 9. The splenic flexure may be seen by lifting the omentum | 16 |
| Fig. 10. Just inferior to the splenic flexure | 16 |
| Fig. 11. By retracting the small bowel to the right side | 17 |
| Fig. 12. During the surgical mobilization of the sigmoid colon | 17 |
| Fig. 13. During a surgical dissection of the origin of the inferior | 17 |
| Fig. 14. With a patient in the Trendelenburg position | 18 |
| Fig. 15. Major vessels of the right colon may be appreciated | 19 |
| Fig. 16. As the right colon is mobilized, the retroperitoneal structures | 19 |
| Fig. 17. Vessels of the transverse colon and major structures | 19 |
| Fig. 18. In the left inguinal region, the relationships | 20 |
| Fig. 19. A broad view of the pelvis is seen during laparoscopy | 20 |
| Fig. 20. Lifting up on the right uterine adnexa permits | 21 |
| Fig. 21. After complete mobilization of the rectum | 21 |
| Fig. 22. umbilical ligament (transperitoneal view of right hemipelvis | 22 |
| Fig. 23. pouch of douglas | 23 |
| Fig. 24. Base of vasculodeferential triangle | 24 |
| Fig. 25. Diagrammatic representation of two forms of sessile polyp | 27 |
| Fig. 26. Polyps of colon as revealed by colonoscopy | 27 |
| Fig. 27. A, Pedunculated adenoma showing a fibrovascular | 30 |

| | |
|---|----|
| Fig. 28. A- Familial adenomatous polyposis in an 18-year-old | 30 |
| Fig. 29. Carcinoma of the caecum | 33 |
| Fig. 30. Carcinoma of the descending colon | 33 |
| Fig. 31. Positions of the surgical team and equipment | 42 |
| Fig. 32. Cannula positions for the diagnostic laparoscopy | 43 |
| Fig. 33. A laparoscopic ultrasound probe can be readily used | 44 |
| Fig. 34. "Rtmning" of the small bowel begins with appropriate | 45 |
| Fig. 35. Running the bowel using the "hand-over-hand" technique | 46 |
| Fig. 36. Diagnostic laparoscopy nearly always affords an excellent | 46 |
| Fig. 37. The Veress needle is held between the surgeon's thumb and index finger | 50 |
| Fig. 38. The Hasson cannula is introduced into the body wall using two fascial sutures | 51 |
| Fig. 39. Optical access trocar is inserted into the abdominal wall. | 51 |
| Fig. 40. A popular laparoscopic needle driver (parrot beak) and assistant grasper | 52 |
| Fig. 41. Specimen extraction using a plastic bag equipped with a draw string | 53 |
| Fig. 42. Laparoscopic Straight linear cutter (SLC) stapler | 55 |
| Fig. 43. Computerized gastrointestinal stapling devices | 56 |
| Fig. 44. Vessel sealing devices (LigaSure) A 10 mm and B 5 mm | 57 |
| Fig. 45. Ligation of the ileocolic vessels using the LigaSure 10 mm instrument | 57 |
| Fig. 46. Longitudinal cut- way view of ultrasonic Shears | 58 |
| Fig. 47. Hand-access device | 60 |
| Fig. 48. Positions of the equipment and the surgical team | 62 |
| Fig. 49. The surgeon assumes a position between the legs | 63 |
| Fig. 50. Positions of the cannulae for the right colectomy | 64 |
| Fig. 51. Good visualization of the right mesocolon is achieved | 64 |
| Fig. 52. Definitive identification of the ileocolic pedicle | 64 |
| Fig. 53. Various approaches to the right colon mobilization | 65 |
| Fig. 54. The surgeon's first step in the dissection is to mark | 66 |
| Fig. 55. From between the legs, the surgeon dissects | 66 |
| Fig. 56. The origins of the ileocolic artery and vein are identified | 67 |
| Fig. 57. Anatomic variations of the origin of the ileocolic vessels | 67 |
| Fig. 58. Dissection of the ventral side of the superior mesenteric vein | 67 |
| Fig. 59. Accessory middle colic or right colic veins are clipped | 68 |

| | |
|---|----|
| Fig. 60. The peritoneum is incised along the base of the ileal mesentery | 69 |
| Fig. 61. The right mesocolon is dissected away | 69 |
| Fig. 62. The venous anatomy between the hepatic flexure | 70 |
| Fig. 63. With earlier steps accomplished, the hepatocolic ligament | 70 |
| Fig. 64. Finally, the tumor-bearing segment of the right colon | 71 |
| Fig. 65. After drawing out the right colon using a wound protector | 71 |
| Fig. 66. Appearance of the abdomen after the completion | 71 |
| Fig. 67. Positions of the equipment and the surgical team | 75 |
| Fig. 68. Positions of the cannulae for laparoscopic sigmoid colectomy | 77 |
| Fig. 69. Active positioning using gravity produces optimum exposure | 78 |
| Fig. 70. The uterus can be suspended to the abdominal wall | 79 |
| Fig. 71. Initial dissection starts with an incision of the sigmoid | 80 |
| Fig. 72. The dissection behind the IMA involves preservation | 80 |
| Fig. 73. Radical lymphadenectomy involves exposure | 81 |
| Fig. 74. The IMA is divided 1—2cm distal to its origin | 81 |
| Fig. 75. The IMV is divided in a safe area between | 82 |
| Fig. 76. An avascular plane exists between Toldt's fascia | 83 |
| Fig. 77. Lateral dissection then proceeds after the previous | 84 |
| Fig. 78. The dissection of the upper rectum should proceed | 84 |
| Fig. 79. After upper rectal mobilization, area of mesorectal | 85 |
| Fig. 80. Distal bowel division is performed through | 85 |
| Fig. 81. Proximal bowel division is performed after dividing | 86 |
| Fig. 82. Medial to lateral dissection beneath the left mesocolon | 87 |
| Fig. 83. Specimen extraction at the suprapubic site | 88 |
| Fig. 84. After specimen extraction, the proximal colon is drawn out | 89 |
| Fig. 85. The anvil and center rod of the circular stapler | 89 |
| Fig. 86. The bowel is reintroduced into the abdominal cavity | 90 |
| Fig. 87. Reestablishment of the pneumoperitoneum | 90 |
| Fig. 88. The anastomosis is then done under laparoscopic | 90 |
| Fig. 89. After firing the stapler, the anastomosis is checked | 90 |
| Fig. 90. Positions of the equipment and the surgical team | 93 |
| Fig. 91. Positions of the equipment and the surgical team | 93 |

| | |
|--|-----|
| Fig. 92. Positions of the equipment and the surgical team | 94 |
| Fig. 93. Positions of the cannulae for laparoscopic total abdominal | 95 |
| Fig. 94. Dissection is commenced at the sacral promontory | 96 |
| Fig. 95. Dissection is continued superiorly beneath the IMA | 96 |
| Fig. 96. After creating a peritoneal window to the left | 97 |
| Fig. 97. The left colic artery and vein are ligated separately | 98 |
| Fig. 98. The left mesocolon is dissected away from | 98 |
| Fig. 99. The mesorectum is divided sharply | 98 |
| Fig. 100. The rectum is next divided from the right side | 98 |
| Fig. 101. The colon is reflected medially and dissection of the lateral | 100 |
| Fig. 102. Separation of the omentum from the colon | 100 |
| Fig. 103. Splenic flexure mobilization may be expedited | 100 |
| Fig. 104. Phase III begins with an incision just below | 102 |
| Fig. 105. After mobilizing the pedicle, it is ligated | 102 |
| Fig. 106. The ileal and right colonic mesenteric attachments | 102 |
| Fig. 107. Just cephalad to the ligated ileocolic pedicle | 103 |
| Fig. 108. The ligation of the middle colic vessels may be safer | 103 |
| Fig. 109. Attachments of the ileum just medial to the base | 105 |
| Fig. 110. The last lateral adhesions of the right colon are incised | 105 |
| Fig. 111. The hepatocolic ligament is divided from medial to lateral | 105 |
| Fig. 112. The entire colon may then be pulled out | 106 |
| Fig. 113. After removing the entire colon | 107 |
| Fig. 114. After passing the circular stapler up to the top | 107 |
| Fig. 115. A standard double-stapled technique is used | 127 |
| Fig. 116. Mesenteric vascular connections between the left colic | 108 |
| Fig. 117. Positions of the equipment and the surgical team | 113 |
| Fig. 118. Positions of the cannulae for the laparoscopic anterior | 114 |
| Fig. 119. Dissecting plane from the medial or lateral sides | 115 |
| Fig. 120. In the medial approach, the superior rectal | 115 |
| Fig. 121. It is always an option to perform dissection laterally | 116 |
| Fig. 122. Once the adventitious tunica of the inferior mesenteric | 119 |
| Fig. 123. Next, the inferior mesenteric vein and the left colic artery | 119 |

| | |
|---|-----|
| Fig. 124. The rectal dissection starts from the right side | 119 |
| Fig. 125. With careful traction and countertraction by the surgeon | 120 |
| Fig. 126. Next, the peritoneal reflection is incised | 121 |
| Fig. 127. The lateral ligaments are placed under tension | 121 |
| Fig. 128. With tension applied to the left side of the rectum | 122 |
| Fig. 129. An endoscopic linear stapler is introduced | 122 |
| Fig. 130. A transanally introduced circular stapler | 123 |
| Fig. 131. The double-stapled anastomosis is performed | 123 |
| Fig. 132. After resection, the staples should be evaluated | 123 |
| Fig. 133. Positions of the equipment and the surgical team | 128 |
| Fig. 134. Positions of the cannulae for the laparoscopic APR | 129 |
| Fig. 135. Initial dissection involves incising the peritoneum | 130 |
| Fig. 136. The IMA is divided using a LigaSure 5mm device | 130 |
| Fig. 137. Dissection is then continued medial to lateral | 131 |
| Fig. 138. When the ureter cannot be easily identified | 131 |
| Fig. 139. The IMV is ligated only if the ureter is identified | 132 |
| Fig. 140. Lateral attachments of the sigmoid colon | 133 |
| Fig. 141. Using triangulating tension, the sigmoid mesocolon | 133 |
| Fig. 142. Proximal resection line is next incised with an endoscopic | 133 |
| Fig. 143. Posterior mobilization is initiated next at the sacral | 134 |
| Fig. 144. As the posterior rectal mobilization proceeds | 134 |
| Fig. 145. At the level of the lateral stalks, the pelvic plexus | 135 |
| Fig. 146. It may be highly useful to use the surgeon's | 136 |
| Fig. 147. Just as in the rectal mobilization | 137 |

List of Abbreviations

| | |
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| APC | Adenomatous polyposis coli |
| APR | Abdominoperineal resection |
| CD | Chron's disease |
| CDS | Complicated Diverticulosis of the Sigmoid |
| HLA | Human leucocytes antigen |
| UC | Ulcerative Colitis |
| NHMRC | National Health and Medical Research Council |
| AJCC | The American Joint Committee on Cancer |
| HALS | Hand-assisted Laparoscopic Surgery |
| LAC | Laparoscopic-assisted Colectomy |
| OC | Open Colectomy |
| TME | Total Mesorectal Excision |
| COLOR | Colon Carcinoma Laparoscopic or Open Resection |
| ACL | Anococcygeal ligament |
| ACRS | American Society of Colon and Rectal Surgeons |
| APR | Abdominoperineal resection |
| AS | Anal sphincter |
| BL | Broad ligament |
| CEA | Carcinoembryonic antigen |
| DCBE | Double contrast barium enema |
| DRE | Digital rectal exam |
| EIA | External iliac artery |
| EIV | External iliac vein |
| EAES | European Association of Endoscopic Surgeons |
| FAP | Familial adenomatous polyposis |
| FOBT | Blood Fecal occult test |
| FT | Fallopian tube |
| GFN | Genitofemoral nerve |
| GV | Gonadal vessels |

| | |
|---------------|---|
| HALS | Hand-assisted laparoscopic surgery |
| HF | hepatic flexure |
| HN | Hypogastric nerve |
| HNPCC | Hereditary nonpolyposis colorectal cancer |
| ICA | Ileocolic artery |
| ICV | Ileocolic vein |
| IIA | Internal iliac artery |
| IIR | Internal inguinal ring |
| IMA | Inferior mesenteric artery |
| IMV | Inferior mesenteric vein |
| L bMCA | Left branch of the middle colic artery |
| LCA | Left colic artery |
| LIQ | The Left lower Quadrant |
| LUL | Latral umbilical ligament |
| LUQ | The Left Upper Quadrant |
| MCA | Middle colic artery |
| MCV | Middle colic vein |
| MUL | Medial umbilical ligament |
| Pb | Pancreatic body |
| PET | Positron emission tomography |
| PF | Pelvic floor |
| RA | Renal artery |
| RALC | Right-angled linear cutter |
| RIQ | The Right lower Quadrant |
| RUQ | The Right Upper Quadrant |
| SC | Sigmoid colon |
| SF | Splenic flexure |
| SLC | Straight linear cutter stapler |
| SMA | Superior mesenteric artery |
| SMV | Superior mesenteric vein |
| TC | Transverse colon |
| UF | Uterine fundus |

Introduction

Colorectal cancer is the third most common malignant disease and the second most frequent cause of cancer related death in the western Countries, with 145,290 new cases and 56,290 deaths occurred in 2005. Worldwide, colorectal cancer is the fourth most commonly diagnosed Malignant disease, with an estimated 1,023,000 new cases and 529,000 Deaths each year (**Jemal et al., 2005**) .

It is the third most common cancer in both men and women in the United States (**Lui & Crawford, 2005**) .Colorectal cancer is the second most prevalent cancer in the developed world and the third most prevalent in developing nations.(**Pisani P et al., 2002**).Colon cancer is becoming common in Egypt. Its also has unique characteristics that differ from those reported in the western countries.(**Abeer A. Bahnassy et al., 2002**).

Improved laparoscopic skills and introduction of new instruments have led to broad applications of laparoscopy in benign and malignant diseases. Recently, institutional and multicenter randomized trials have shown that laparoscopic surgery for colorectal cancer is safe and an acceptable alternative for open surgery (**Leung et al, 2004**).

Minimally invasive techniques are being refined for colorectal cancer surgery with well documented advantages of less postoperative pain, reduced ileus, shorter hospital stay, better cosmesis and earlier return to work. In the hands of experienced laparoscopic and colorectal surgeons, the initial concerns over port site recurrences are probably unfounded and the long-term survival at least comparable with open surgery. (**Lumley J et al., 2002**).

Laparoscopy has improved the surgical treatment of various diseases due to its limited surgical trauma and has developed as an interesting therapeutic alternative for open colorectal surgery. The applicability of laparoscopy to colorectal diseases continues to expand. Laparoscopic approach should be mainly considered for patients with benign conditions, For colorectal cancer, results from randomized trials so far have been favorable.(**Chung C.C ,et. al 2003**).

Laparoscopic colorectal surgery for advanced colorectal carcinoma is controversial because of the technical difficulties in lymph node dissection.(**Yamato Watanabe M.H et al., 2001**)

On the other hand, in stage IV colorectal cancer, patients who underwent palliative laparoscopic surgery, the laparoscopic surgery might facilitate effective palliation in selected patients, with the avoidance of a major laparotomy. (**Hartley J.E et al., 2002**).

There are three basic roles of laparoscopic surgery for patients with colorectal cancer. First, although infrequently needed prior to therapy, diagnostic or staging laparoscopy may be valuable in certain colorectal cancer patients. Second, the laparoscopic approach may offer several attractive features for the palliative management of patients with incurable colorectal cancer. Finally, although this issue is the most controversial, there are theoretic but unproved advantages of using laparoscopic techniques for curative colorectal cancer therapy. The concerted efforts of surgical oncologists and their colleagues must prove this theory in well constructed trials. (**Milson J.W et al., 2004**).

Studies confirmed reduction in conversion rates with experience and highlighted that the learning curve is quite prolonged, with improvement noticeable even after several years. However, such results should be interpreted with some caution, as with increasing experience, surgeons tend to undertake more challenging cases, which may skew the results. In various studies, although the conversion rates have decreased with experience, there has been no significant change in the duration of surgery. The main reason for conversion in these studies was adhesions, which is similar to other series. Better case selection may also contribute to reduction in conversion rates (**Shah et al, 2005**).